

ATTORNEY DOCKET NO. 91-C-127C1 (STMI01-00022)
U.S. SERIAL NO. 09/803,715
PATENT

AMENDMENT TO THE CLAIMS:

Please amend the claims as follows, substituting any amended claim(s) for the corresponding pending claim(s):

1. (Currently Amended) An integrated circuit structure fabrication method, comprising:

forming n-type and p-type regions within a substrate;

forming an oxidation barrier layer on a surface of the substrate over the n-type and p-type regions;

forming a first patterned layer exposing the oxidation barrier layer over first isolation areas in the n-type region and covering substantially all of the oxidation barrier layer over the p-type region and over active device areas in the n-type region;

removing portions of the oxidation barrier layer exposed by the first patterned layer to expose the first isolation areas;

implanting a first, p-type channel-stop dopant into the first isolation areas exposed by the first patterned layer and the remaining oxidation barrier layer;

removing the first patterned layer;

forming a second patterned layer on the remaining oxidation barrier layer over the n-type and p-type regions and on the exposed surface of the substrate in the first isolation areas, the second patterned layer exposing the remaining oxidation barrier layer over second isolation areas in the p-

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type region and covering substantially all of the remaining oxidation barrier layer over the n-type region and active device areas in the p-type region;

removing portions of the remaining oxidation barrier layer exposed by the second patterned layer to expose the second isolation areas;

implanting a second n-type channel-stop dopant into the second isolation areas exposed by the second patterned layer and the remaining oxidation barrier layer;

removing the second patterned layer; and

growing a field oxide on the surface of the substrate in the first and second isolation areas where exposed by the remaining oxidation barrier layer in a single oxidation step.

Claims 2–31. (Canceled)

32. (Previously Presented) The method of claim 1, wherein the first isolation areas are protected by only the second patterned layer during implantation of the second channel-stop dopant into the second isolation areas.

33. (Previously Presented) The method of claim 1, wherein the oxidation barrier overlies an oxide layer which is patterned together with the oxidation barrier using the first and second patterned layers to expose the first and second isolation areas.

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34. (Previously Presented) The method of claim 33, wherein the oxidation barrier overlies a polysilicon layer on the oxide layer which is patterned together with the oxidation barrier and the oxide layer using the first and second patterned layers to expose the first and second isolation areas.

35. (Previously Presented) The method of claim 1, wherein critical dimensions for the active device areas in the p-type region are selected independently from critical dimensions selected for the active device areas in the p-type region.

36. (Previously Presented) The method of claim 1, further comprising:
prior to removing the first patterned layer, etching the substrate through the first patterned layer to form recesses in the first isolation areas in the n-type region.

37. (Previously Presented) The method of claim 1, further comprising:
prior to removing the second patterned layer, etching the substrate through the second patterned layer to form recesses in the second isolation areas in the p-type region.

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38. (Currently Amended) A method of forming an integrated circuit structure, comprising:
- forming an active stack over two adjacent wells having opposite conductivity types within a substrate;
 - forming a first patterned layer exposing the active stack over isolation regions within a first of the two wells having a first conductivity type and covering the active stack over both active device areas within the first well and substantially all of a second of the two wells having a second conductivity type;
 - patterning the active stack using the first patterned layer to expose a surface of the substrate in isolation regions within the first well;
 - implanting a channel-stop of the second conductivity type into the exposed isolation regions within the first well masked by the first patterned layer and the remaining active stack, wherein the first patterned layer protects active device areas in the first well and substantially all of the second well during the implant of the channel-stop in the exposed isolation regions within the first well;
 - removing the first patterned layer;
 - forming a second patterned layer exposing the remaining active stack over isolation regions within the second well and covering the remaining active stack over both active device areas within the second well and substantially all of the first well;
 - patterning the active stack using the second patterned layer to expose the surface of the substrate in the isolation regions within the second well;

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implanting a channel-stop of the first conductivity type into the exposed isolation regions within the second well masked by the second patterned layer, wherein the second patterned layer protects active device areas in the second well and substantially all of the first well during the implant of the channel-stop in the exposed isolation regions within the second well;

removing the second patterned layer; and

growing a field oxide on the isolation regions within both the first and second wells with a single oxidation step.

39. (Previously Presented) The method of claim 38, wherein the isolation regions within the first well are protected by only the second patterned layer during implantation of the channel-stop into the isolation regions within the second well.

40. (Previously Presented) The method of claim 38, wherein the active stack further comprises:
a nitride layer overlying an oxide layer, wherein the nitride and oxide layers are patterned together using the first and second patterned layers to expose the first and second isolation areas.

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41. (Previously Presented) The method of claim 40, wherein the active stack further comprises:
a polysilicon layer between the nitride and oxide layers, wherein the polysilicon layer is patterned together with the nitride and oxide layers using the first and second patterned layers to expose the first and second isolation areas.
42. (Previously Presented) The method of claim 38, wherein critical dimensions for the active device areas in the first well are selected independently from critical dimensions selected for the active device areas in the second well.
43. (Previously Presented) The method of claim 38, further comprising:
prior to removing the first patterned layer, etching the substrate through the first patterned layer to form recesses in the exposed isolation regions within the first well.
44. (Previously Presented) The method of claim 38, further comprising:
prior to removing the second patterned layer, etching the substrate through the second patterned layer to form recesses in the exposed isolation regions within the second well.
45. (Previously Presented) The method of claim 38, wherein the first well is an n-well and the second well is a p-well.

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46. (Withdrawn) An integrated circuit structure, comprising:
an active stack over two adjacent wells having opposite conductivity types within a substrate,
wherein the active stack has openings therethrough over isolation regions within a first well
having a first conductivity type and over isolation regions within the second well having a second
conductivity type;
a channel-stop within the substrate beneath the isolation regions within the first well; and
a patterned masking layer on the active stack and directly on the substrate within the isolation
regions within the first well, wherein the patterned masking layer has openings therethrough over
the isolation regions within the second well.
47. (Withdrawn) The integrated circuit structure of claim 45, further comprising:
a channel-stop within the substrate beneath the isolation regions within the second well.